



Marathon Petroleum Company LP

FED EX GROUND

January 27, 2016

1300 South Fort Street
Detroit, MI 48217
Tel: 313.843.9100

Chief Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
ENRD Mailroom, Room 2121
601 D. Street, NW
Washington, DC 20530

Director, Air Enforcement Division
U.S. Environmental Protection Agency
c/o Matrix New World Engineering, Inc.
26 Columbia Turnpike
Florham Park, NJ 07932

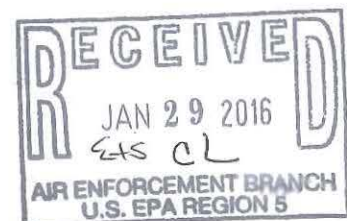
**RE: First Revised Consent Decree Progress Report – July 1 – December 31, 2015;
Marathon Petroleum Company LP, Michigan Refining Division, Detroit, Michigan**

Dear Sir or Madam:

Pursuant to Paragraph 33 of the November 2005 First Revised Consent Decree, United States of America et. al. v. Marathon Ashland Petroleum LLC (presently known as Marathon Petroleum Company LP) (Civil Action No. 4:01CV-40119-PVG), as modified on March 31, 2008 and June 30, 2010, MPC is submitting this semi-annual progress report for the time period July 1 through December 31, 2015. In order to meet the reporting requirements outlined in Paragraph 33 of the Consent Decree, each subject area is described in the following attachments:

- Attachment 1 - Affirmative Relief/Environmental Projects (Measures) implementation progress report.
- Attachment 2 - Summary of Appendix R Emissions
- Attachment 3 – Identification of Emission Limit Exceedances
- Attachment 4 - Description of any problems anticipated with respect to meeting the requirements of this Consent Decree
- Attachment 5 - Description of all environmentally beneficial projects and SEP implementation activity in accordance with the Consent Decree
- Attachment 6 – Any additional matters MPC believes should be brought to the attention of the United States or U.S. EPA – none.
- Attachment 7 – Hydrocarbon, Tail Gas and Acid Gas Incident Status Report

Should you have any questions or require additional information please contact Kay Bedenis at (313) 297-6289.




CERTIFICATION –

I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information in Attachments 1 through 7 of this submittal is, to the best of my knowledge and belief, true, accurate, and complete.

Sincerely,

Marathon Petroleum Company LP

By: MPC Investment LLC, General Partner



Mr. David Roland, Deputy Assistant Secretary

Attachments (7)

Cc: Air and Radiation Division
U.S. EPA, Region 5

Office of Regional Counsel
U.S. EPA, Region 5

Ms. Wilhemina McLemore
Michigan Department of Environmental Quality
Air Quality Division

Via e-mail: Mr. Greg Myers (MPC), Mr. James R. Wilkins (MPC), Ms. Virginia King (MPC), Ms. Clare Sullivan, Matrix Engineering; Mr. John Fogarty, U.S. EPA; Mr. Patrick Foley, U.S. EPA; Constantinos Loukeris, U.S. EPA

MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
AIR QUALITY DIVISION

**RENEWABLE OPERATING PERMIT
REPORT CERTIFICATION**

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Natural Resources and Environment, Air Quality Division upon request.

Source Name Marathon Petroleum Company LP County Wayne
Source Address 1300 South Fort Street City Detroit
AQD Source ID (SRN) A9831 ROP No. MI-ROP-A9831-2012b ROP Section No. 01

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From _____ To _____

- ☐ 1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.
- ☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From _____ To _____

- ☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.
- ☐ 2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

☒ **Other Report Certification**

Reporting period (provide inclusive dates): From 7/1/2015 To 12/31/2015

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

Revised Consent Decree Progress Report - July 1 - December 31, 2015

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

**MPC Investment LLC,
its General Partner
Deputy Assistant Secretary**

David Roland

Name of Responsible Official (print or type)

Title

313-843-9100

Phone Number

Signature of Responsible Official

1/28/2016
Date

Attachment 1

Affirmative Relief/Environmental Projects (Measures) **Implementation Progress Report**

The following table provides a status report on First Revised Consent Decree activities or tasks having a deadline occurring between July 1 and December 31, 2015. The citations refer to the paragraph numbers (all in Section V) of the Consent Decree (CD). All items were completed as required during this reporting period.

- 12A In accordance with discussions between MPC and U.S. EPA, the schedule for the low oxides of nitrogen (NO_x) combustion promoter (COP) and NO_x-reducing catalyst additives has been revised several times. The 18-month catalyst trial period ended on March 31, 2006.
- 12B MPC did not add conventional combustion promoter during the reporting period.
- 12I MPC is meeting the agreed upon 365-day limit of 93 ppm and the 7-day limit of 123 ppm for NO_x. The refinery has met these limits since November 15, 2005. The refinery has met the 365-day limit of 70 ppm NO_x since November 22, 2008.
- 12J The quarterly cylinder gas audit (CGA) of the NO_x CEMS on the FCCU regenerator exhaust after the ESPs in the exhaust stack was performed on August 24, 2015 and December 21, 2015. Data collected from the tests was within allowable limits and was submitted to appropriate agencies with the Detroit Refinery's quarterly CEMS reports.
- 12K The quarterly CGA of the Carbon Monoxide (CO) CEMS on the FCCU regenerator exhaust after the ESPs in the exhaust stack was performed on August 24, 2015 and December 21, 2015. Data collected from the tests was within allowable limits and was submitted to appropriate agencies with the Detroit Refinery's quarterly CEMS reports.
- 12L The Detroit Refinery's Hydrotreater Outage Plan for NO_x was approved by the U.S. EPA on November 20, 2007. There have been no Hydrotreater Outages that required usage of the plan during the reporting period.
- 13A MPC installed Ultra-Low NO_x burners on the Crude Vacuum Heater and the Crude Alcorn Heater. This was completed ahead of the schedule outlined in the NO_x Control Plan. The two heaters have remained below MPC's plan limit of 0.050 lbs/MMBTU since November 15, 2005.
- 13D MPC's corporate office submitted the NO_x control plan on March 24, 2015.
- 13G A NO_x CEMS was installed on the combined stack for the Crude Vacuum Heater and the Crude Alcorn Heater, as required. The CEMS analyzer was certified in November 2005.
- 13H The quarterly CGA of the NO_x CEMS installed on the Crude Vacuum and Crude Alcorn Heaters' combined exhaust was performed on July 9, 2015 and October 5, 2015. The

CGA accuracy was within allowable limits. Data collected from the tests were submitted to appropriate agencies with the Detroit Refinery's quarterly CEMS reports.

- 13L The Detroit Refinery has not sought a PAL for CO emissions from heaters.
- 14 MPC has incorporated the agreed upon sulfur dioxide (SO₂) emission limits for the FCCU Regenerator into the refinery's Title V Permit number MI-ROP-A9831-2012b.
- 14E/F The Detroit Refinery completed an optimization study for SO₂ adsorbing catalyst additive in the FCCU in July 2005. Intercat Super SO_xGetter II is added with fresh catalyst as required to maintain compliance with emission limits.
- 14G The Detroit Refinery has been in compliance with the FCCU Regenerator's SO₂ limits of 35 ppm on a 365-day average and 70 ppm on 7-day average since November 30, 2005.
- 14I The quarterly CGA of the SO₂ CEMS on the FCCU regenerator exhaust after the ESPs in the exhaust stack were performed on August 24, 2015 and December 21, 2015. Data collected from the tests was within allowable limits and was submitted to appropriate agencies with the Detroit Refinery's quarterly CEMS reports.
- 14J The Detroit Refinery's Hydrotreater Outage Plan for SO₂ was approved by the U.S. EPA on November 20, 2007. There have been no Hydrotreater Outages that required usage of the plan during the reporting period.
- 15A This paragraph requires that MPC discontinue or reduce burning of fuel oil in its heaters and boilers. For the Detroit Refinery, this included the elimination of fuel oil burning in its CO Boiler. The CO Boiler ceased operation permanently in August 2003 and has been dismantled. No heaters or boilers at the Detroit Refinery currently burn fuel oil.
- 15B MPC's Detroit Refinery maintained compliance, except as outlined in Attachment 3 and as allowed during periods of start-up, shutdown, and malfunction, with the limits established by NSPS Subpart J for the heaters identified in Appendix H, per the schedule listed.

Alternative monitoring plans (AMPs), relevant to heaters and boilers, were approved by U.S. EPA Region 5 for the following streams: FCCU Disulfide Off-Gas, Alkylation Unit Deethanizer Off-Gas, Propylene Unit Deethanizer Off-Gas, Continuous Catalytic Reformer (CCR) Lock Hopper Vent Gas and the CCR Chlorsorb Vent. Our December 2, 2013 Notice of Withdrawal letter to U.S. EPA Region 5 identified withdrawal of the AMPs for the Alkylation Unit Deethanizer Off-Gas and the Propylene Unit Deethanizer Off-Gas as they no longer apply due to physical reconfiguration of the streams. These streams are now monitored by the existing H₂S continuous monitoring system. The letter also provided notice that the AMPs for the CCR Lock Hopper Vent Gas and the CCR Chlorsorb Vent were no longer necessary as the gas streams are inherently low in sulfur content, meeting the inherently low in sulfur content exemption for monitoring the stream. The AMP for the FCCU Disulfide Off-Gas AMP is still in effect.

- 15C NSPS Subpart J limits and requirements have been incorporated into the Detroit Refinery's Title V Permit (MI-ROP-A9831-2012b).
- 15D As specified in this paragraph, MPC certifies compliance with paragraph 15 of the CD. Please note that refinery heaters and boilers do not burn fuel oil and are in compliance with NSPS Subpart J except as outlined in Attachment 3 and as allowed during periods of start-up, shutdown, and malfunction.
- 16A As specified in this paragraph and in Appendix I of the CD, the Detroit Refinery was required to accept the FCCU NSPS Subpart J sulfur oxides (SO_x) limit as of December 31, 2004. MPC petitioned U.S. EPA to use the existing SO₂ CEMS data plus a 10% correction factor to demonstrate compliance with the NSPS Subpart J SO_x limit. MPC's Detroit Refinery has maintained compliance with NSPS Subparts A and J for the FCCU Regenerator since January 1, 2006 except as described during periods of start-up, shutdown, and malfunction.
- 16B As specified by this paragraph MPC began operations of two electrostatic precipitators (ESPs) on December 21, 2004. Periodic stack testing results indicate the ESPs operate below the 1 pound per 1,000 pounds of coke burn as specified. MPC has maintained compliance with the respective particulate limits since December 21, 2004, except during periods of start-up, shutdown and malfunction. Performance testing was conducted on August 11 – 12, 2015 and September 1, 2015, with passing results.
- 16C The Detroit Refinery has not sought a PAL for particulate emissions.
- 16D MPC operates a continuous opacity monitoring system (COMS) on the Detroit Refinery's FCCU's exhaust stack.
- 17Aiii There were 3 hydrocarbon flaring events during the reporting period. Corrective actions for the events on August 18, 2015, October 25, 2015 and October 30, 2015 are listed in Attachment 7. The following hydrocarbon events have been closed out since the last progress report: Debutanizer Pressure NTE and Flaring Incident INC-141682 (4/9/2015) and Gas Con Unit Upset and FCCU Shutdown Incident INC-142220 (5/9/2015).
- 17B MPC accepted NSPS Subpart J compliance for fuel gas combustion device at the Detroit Refinery for the four flares specified in Appendix A. Routinely generated refinery fuel gas streams that were combusted in these flares either had to be controlled and monitored for hydrogen sulfide (H₂S) or re-routed out of the flare.

For the Unifiner Flare, the only stream that required re-routing was the Unifiner Naphtha Skimmer Vent Stream. A compressor was installed and commissioned such that this vent stream was re-routed out of the flare and back into the process.

For the Alkylation Flare, the only stream requiring re-routing was the Alkylation Unit CDR Vent. A refrigerant purge pump was originally installed and commissioned in order to prevent the CDR from being vented to the flare. During the 2012 turnaround, this pump was replaced with the Depropanizer Charge Pump. The refrigerant is now vented

to the Depropanizer Charge prior to being returned to the front of the process. This configuration continues to prevent the CDR from begin vented to the flare.

Our December 2, 2013 Notice of Withdrawal letter was submitted to U.S. EPA Region 5 for the following AMPs:

- Alkylation Degassing Drum (approved 3/1/11)
- LPG Caustic Pot (approved 9/21/13)
- Alkylation Spent Caustic System (approved 2/19/08)
- CP Spent Caustic (approved 12/23/03)
- SR Platformer Aromatics Sump Vent Stream (approved 12/23/03)
- LPG Loading Purge Gas (approved 12/23/03)
- Crude Spent Caustic Drum (approved 6/28/04)
- SR and BT (CCR) Platformer Recycle Hydrogen Streams (approved 12/23/03)

The monitoring procedures approved in these AMPs are no longer necessary to monitor the H₂S in these streams because MRD has installed gas chromatographs that measure the amount of H₂S in the streams that are routed to MRD's flares. These gas chromatographs were installed pursuant to the consent decree that Marathon Petroleum Company LP executed with the United States Environmental Protection Agency and which became effective on August 30, 2012 (United States District Court of the Eastern District of Michigan, Civil Action No. 2:12-cv-11544-DML-MJH) ("Flare Consent Decree").

The letter also identified the following AMPs that are no longer applicable due to physical reconfiguration of the stream which allows continuous H₂S monitoring:

- Propylene Deethanizer Offgas Stream (approved 6/9/03)
- Alkylation Deethanizer Offgas Stream (approved 3/12/02)

The following AMPs are no longer needed because the streams are inherently low in sulfur content and meet the requirements for exemption:

- Continuous Catalyst Regenerator (CCR) Vent Gas Stream (approved 10/26/04)
- CCR Lock Hopper Vent Gas AMP (approved 3/4/04)

The following AMPs are no longer needed because the sources where the stream originated are no longer in service:

- Unifiner Recycle Hydrogen Stream (approved 12/23/03)
- Crude Spent Caustic Drum Stream (approved 6/28/04)

The following AMP is still in effect and is reported on to the MDEQ and U. S. EPA Region 5 with the quarterly CEMS report:

- FCC Disulfide Off Gas Stream (approved 11/15/01)

18Aiii As of June 30, 2003, the Detroit Refinery began compliance with the 6BQ compliance option per the CD and the Benzene Waste Operations NESHAP (BWON) regulations.

18B The Detroit Refinery did not change its BWON compliance option from 6 BQ to 2 Mg during this reporting period.

- 18E The Detroit Refinery has completed installation and operation of primary and secondary carbon canisters at different stations throughout the refinery. In addition, MPC has developed a monitoring program and completes periodic monitoring of the canisters.
- 18Eii The Detroit Refinery has chosen to monitor the carbon canisters twice a week based on design data.
- 18Eiii The Detroit Refinery monitors carbon canisters twice a week for breakthrough. When this occurs the secondary canister is moved to the primary position and a new secondary canister is installed.
- 18Eiv MPC has a fresh supply of carbon canisters available on-site.
- 18Ev Records documenting carbon canister monitoring and switch outs are kept on-site.
- 18F A review of new benzene waste streams occurs with every Management of Change. Additionally, an annual review for new benzene waste streams takes place when the annual TAB report is compiled. The most recent review was completed in October 2015.
- 18Giii Per this paragraph, MPC is required to conduct audits of laboratories that perform analyses of MPC's BWON samples at least once every two (2) years. During this reporting period, MPC used Catlettsburg's RAD Laboratory and ESC Labs of Nashville for BWON analysis. An audit was last conducted on December 9, 2015 for RAD and on July 23, 2015 for ESC.
- 18H A procedure has been developed to ensure that benzene due to spills is included in the Detroit Refinery's total annual benzene (TAB) quantity.
- 18Ii Annual training is conducted as required. Details of MPC's training program are included in the quarterly BWON reports.
- 18Iv The only contractors identified that meet the description in this paragraph are LDAR contractors which will perform monitoring and visual inspections of BWON control equipment. Their training is required per paragraph 20 of the CD and is reported in the quarterly LDAR and BWON reports.
- 18J Revised BWON waste/slop/off-spec oil schematics were submitted to appropriate agencies on July 25, 2013.
- 18K As required by this paragraph, MPC originally submitted a proposed end-of-line (EOL) sampling plan to U.S. EPA on October 29, 2003 and was revised and resubmitted on February 9, 2010 and approved on March 8, 2010. MPC began reporting these results in the first quarter BWON reports for 2007. MPC submitted a revised plan on July 25, 2013.
- 18Nii Drains, with water traps, that are subject to BWON or NSPS QQQ control requirements have been included in a program to visually inspect them weekly. All area drains that are

segregated storm water drains have been identified and marked per this paragraph. MPC has developed a system to visually inspect, on at least a weekly basis, all conservation vents and indicators on process sewers for detectable leaks and to record the results. If leaks are detected, the vents will be reset.

18Oii The Detroit Refinery was not included in the carbon canister study referenced in this paragraph because no carbon canisters have been installed as of January 31, 2002.

18Pii Information required to be reported by this paragraph is included in the quarterly BWON reports that are submitted to the MDEQ and U.S. EPA.

18Q The Detroit Refinery will submit reports, etc. according to the provisions of this paragraph.

19Ai As of June 30, 2003, the Detroit Refinery has completed implementation of actions to comply with the BWON compliance option set forth at 40 CFR §61.342(e).

19Aiii The Detroit Refinery manages and treats all organic benzene waste streams in accordance with the requirements of 40 CFR §61.342(c)(1) and has completed installation of BWON controls.

19Aiv As of June 30, 2003, the Detroit Refinery manages and treats all aqueous benzene wastes in accordance with 40 CFR §61.342(e)(2). In addition, MPC has satisfied the compliance measures specified in 19Aivc as follows:

- (1) A desalter water flash column was installed and commissioned.
- (2) The drain system components in the Melvindale and Crude tank farms have been fitted with controls that meet the requirements of 40 CFR §61.346.
- (3) BWON controls (floating roof) have been installed on Tank 507.
- (4) The aqueous benzene waste from the truck-loading area at the bulk gasoline terminal has been re-routed through a system controlled pursuant to the requirements of 40 CFR Part 61, Subpart FF.

In addition, the Detroit Refinery has initiated programs to complete testing, monitoring, and reporting activities as required by 40 CFR Part 61, Subpart FF. A report certifying compliance with BWON control requirements was submitted to U.S. EPA on August 26, 2003.

20A A written refinery-wide leak detection and repair (LDAR) program has been developed and is updated as needed.

20B Training for the LDAR program is reported on a quarterly basis in the refinery's LDAR reports submitted to MDEQ and U.S. EPA.

20C/D MPC conducted a third-party LDAR audit on March 23 – 27, 2015.

20Ei According to this paragraph, MPC must utilize an internal leak definition of 500 ppm for all valves, excluding pressure relief devices. Currently all valves (except pressure relief devices) are monitored at this lower leak definition.

- 20Eii According to this paragraph, MPC must utilize an internal leak definition of 2,000 ppm for all pumps. Currently all pumps are monitored at this lower leak definition.
- 20F The applicable regulatory leak definitions for valves and pumps continues to be used and will be used in the future for reporting leaks at the Detroit Refinery to regulatory agencies. Also, leakers at the lower leak rates are tracked and repaired within 30 days of detection.
- 20G The Detroit Refinery continues to perform first repair attempts on valves (on which monitoring technicians are able to perform maintenance) leaking at greater than 200 ppm.
- 20H The Detroit Refinery continues to monitor pumps on a monthly basis and valves on a quarterly basis as required by this paragraph.
- 20I The Detroit Refinery uses GuideWare software as the refinery's electronic database to store LDAR data. MPC continues to use electronic data collection devices during LDAR monitoring as required by this paragraph.
- 20J A program to perform daily QA/QC review of monitoring data was utilized during the reporting period. Quarterly QA/QC reviews of contractors' LDAR data were performed in July 2015 and October 2015.
- 20L The Detroit Refinery continues to use its Management of Change (MOC) program to track the addition of pumps and valves.
- 20Mi The Detroit Refinery continues to use methane as calibration gas for LDAR monitoring equipment.
- 20Mii The Detroit Refinery continues to perform cal drift assessments of LDAR equipment with 500 ppm methane calibration gas.
- 20N The Detroit Refinery has developed programs to meet the "Delay of Repair" requirements in this paragraph.
- 20Niii The Detroit Refinery continues to monitor pumps at 2,000 ppm and perform first repair attempts within fifteen days.
- 20Oib MPC certifies that it uses electronic data collection during LDAR monitoring and is following the manufacturer's recommended operating procedures for dataloggers and/or other electronic devices at its Detroit Refinery.
- 20Oiib The last LDAR audit was conducted pursuant to Paragraph 20C of the CD at the Detroit Refinery on March 23 – 27, 2015. The next audit will be required by March 2017.
- 20Oiic Information required by this paragraph was included in the Detroit Refinery quarterly LDAR reports.

- 20P The Detroit Refinery submits copies of its quarterly LDAR reports to the Michigan Department of Environmental Quality, U.S. EPA and U.S. EPA-Region 5.
- 21 As of the Date of Lodging of the CD, the Detroit Refinery had programs in place for the Sulfur Recovery Unit (SRU) to meet NSPS Subparts A and J.
- 21A There were no periods of time during the reporting period in which the sulfur pit vapors were routed to the atmosphere.
- 21C MPC's updated PMO plan for the SRU was last submitted to the U.S. EPA on September 1, 2015.
- 21E There were no tail gas events during the reporting period. Tail gas event GOHT Overhead Stripper Slop to Compressor Intake; High SO₂ at the Incinerator; SO₂ Exceedence for 12-hours Combined Incidents 42330, 42360 and 42392 (3/12/2012) was closed out within the reporting period. The Final Corrective Action letter for this event was submitted on January 7, 2016.
- 22 There were no acid gas events during the reporting period.

First Revised Consent Decree
Michigan Refining Division
 Attachment 2 - Summary of Appendix R Emissions

2nd Half 2015

(average tons/month)

Type of Unit	SOx	CO	NOx	PM
FCCUs	1.93	8.79	3.95	1.93
Heaters/Boilers			3.49	
SRUs	2.26			
Total	4.19	8.79	7.44	1.93

NOx Emissions		FIRST REVISED CONSENT DECREE APPENDIX R															2nd Half 2015		
Unit ID	Emission Unit	Pollutant Emission Rate																	
		July 2015			August 2015			September 2015			October 2015			November 2015			December 2015		
		lbs/hr	tons/month	basis¹	lbs/hr	tons/month	basis¹	lbs/hr	tons/month	basis¹	lbs/hr	tons/month	basis¹	lbs/hr	tons/month	basis¹	lbs/hr	tons/month	basis¹
11	FCCU	13.78	5.13	CEM	13.79	5.13	CEM	11.38	4.10	CEM	2.59	0.96	CEM	11.31	4.07	CEM	11.53	4.29	CEM
4H1	Crude Vacuum Htr	3.11	1.16	CEM	3.23	1.20	CEM	3.52	1.27	CEM	1.60	0.60	CEM	3.77	1.36	CEM	3.61	1.34	CEM
5H1	Crude Alcorn Htr	6.50	2.42	CEM	6.53	2.43	CEM	6.58	2.37	CEM	3.21	1.19	CEM	7.69	2.77	CEM	7.71	2.87	CEM
EU00147	BT Charge Htr	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS
EU00148	BT Inter Htr	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS	0.00	0.00	OOS
														</					

Note 1 - Basis of Calculations -
 CEM Continuous Emission Monitor
 PEM Parametric Emission Monitor
 Stk Test Periodic or Annual Stack Test
 MB Mass Balance
 Engr Est Engineering Estimate
 EF Emission Factor Estimate
 OOS Out of Service

2nd Half 2015

Note 1 - Basis of Calculations -

CEM	Continuous Emission Monitor
PEM	Parametric Emission Monitor
Stk Test	Periodic or Annual Stack Test
MB	Mass Balance
Engr Est	Engineering Estimate
EF	Emission Factor Estimate

First Revised Consent Decree
Michigan Refining Division
Attachment 3 - Identification of Emission Limit Exceedances
2nd Half 2015

Paragraph	Source	Limit	Exceedance Date	Exceedance Hours	Comments
12.I	FCCU	NOx at 93 ppm on a 365-day rolling average and 123 ppm on a 7-day rolling average	None	N/A	There were no exceedances during the reporting period.
13.A.iv	Crude & Vacuum Heater	NOx below 0.05 lbs/MMBTU on a 12 month rolling average	None	N/A	There were no exceedances during the reporting period.
14.G	FCCU	SO2 at 35 ppm on a 365-day rolling average and 70ppm on a 7-day rolling average	None	N/A	There were no exceedances during the reporting period.
15.B	Heaters and Boilers	NSPS Subpart J Fuel Gas limit of 162 ppm on a 3-hour average	8/18/2015	3	East Plant Fuel Gas upset due to process problems. Rule 912.
			10/18/2015	5	West Plant Fuel Gas went high during amine system start-up. Rule 912.
			10/23/2015	2	West Plant Fuel Gas upset due to process problems.
16.A	FCCU	NSPS Subpart J CO limit of 500 ppm on a 1-hour average	10/11/2015	2	High CO from the FCCU due to steam leak and ESP trip. Rule 912.
			10/14/2015	6	High CO from the FCCU during shutdown of unit. Rule 912.
			10/15/2015	11	High CO from the FCCU during shutdown of unit. Rule 912.
			10/29/2015	9	High CO from the FCCU during start-up of unit. Rule 912.
			10/30/2015	12	High CO from the FCCU during start-up of unit. Rule 912.
			7/23/2015	0.6	Process problems resulted in high opacity from the ESPs.
16.B	FCCU	Particulate Matter at 1 pound per 1,000 pounds of coke burned on a 3-hr average and/or 21% Opacity standard.	10/11/2015	4	High opacity from the FCCU ESPs due to steam leak and ESP trip. Rule 912.
			10/15/2015	2	High opacity from the FCCU ESPs during shutdown of unit. Rule 912.
			10/29/2015	3	High opacity from the FCCU ESPs during start-up of unit. Rule 912.
			10/30/2015	2	High opacity from the FCCU ESPs during start-up of unit. Rule 912.
21	SRU	SO2 at 250 ppm on a 12-hour average	8/19/2015	10	Process problems resulted in high SO2 from the incinerator. Rule 912.

Attachment 4

Description of Any Problems Meeting Consent Decree Requirements

The refinery's end of line plan for compliance with BWON requirements under paragraph 18K was approved in March 2010. Since the approval, the Detroit Refinery has been concerned with and evaluating methods for taking the monthly Spent Caustic sample as required by the plan. The refinery's spent caustic vessels do not have piping to allow for the collection of a safe sample. The refinery currently has an engineering project to install a sampling station. In addition, the refinery submitted an update to the end of line plan to reflect our current abilities on July 25, 2013.

Attachment 5

Implementation of Environmental Beneficial Projects (SEPs)

The Detroit Refinery has finished the process of renovating Fordson Island. Tanks, piping, and structures have been removed from the island. A Phase I environmental assessment of the property was completed in July 2001. A Phase II environmental assessment of the property was completed and the report was submitted to the Wayne County Department of Environment on June 12, 2003. A pipeline to an alternate terminal has been constructed and has been commissioned. Additional site investigation was performed and a site-specific analysis report was submitted to the Wayne County Department of Environment and the Michigan Department of Environmental Quality (MDEQ) in June 2004.

MPC has been unable to transfer ownership to a governmental or non-profit organization; therefore MPC is maintaining this site as green-space. A letter was submitted to EPA on January 12, 2007 providing notification of this development. Since this date MPC has taken efforts to maintain the site as an undeveloped property for use by local wildlife including migratory birds. The site has restricted access to humans. At this time, MPC has met the requirements and intent of the Consent Decree. MPC has documented evidence of wildlife such as fox and coyote frequenting the island.

Attachment 6

Additional Matters of Concern

There are no additional matters of concern at this time.

Attachment 7

Hydrocarbon, Tail Gas and Acid Gas Incident Status Report

The attached spreadsheet has the on-going corrective actions from Hydrocarbon, Tail Gas and Acid Gas Incidents.

Attachment 7 - Detroit Refinery Hydrocarbon, Tail Gas and Acid Gas Incident Status Report

Incident No. or ID	Incident Description	Corrective Action Recommendations	Incident Date	Corrective Action Actual Start Date	Completion Date Target	Actual Completion Date	SO2 Emissions	Status / Comments
42330, 42360, 42392	Tail Gas: GOHT Overhead Stripper Slop to Compressor Intake; High SO2 at the Incinerator; SO2 Exceedence for 12-		3/12/2012		4/26/2012	4/25/2012	SO2 = 885 lbs	
1		Investigate Preventive Maintenance or replacement of Sulf Traps in the short term.		4/26/2012	5/31/2012	5/29/2012		One work order for each sulfur train was written and activated for the operator to remove and inspect the basket and float for all three Sultraps per train. twice per year. The Sultrap internals will be replaced if necessary. Inspection to look at Sultrap piping once the internals are removed. Sulfur Train A - WO 4204969, Sulfur Train B - WO 4204970, Sulfur Train C - WO 4204971
2		Investigate the proper exchanger monitoring frequency based on changing plant conditions.		4/26/2012	Extended to 8/31/12	08/12/12		The cooling tower exchangers are currently being monitored on a more frequent interval that began in May of 2012. This includes monthly temperature surveys, biannual flow studies, and continuous approach temperature monitoring.
3		Investigate and correct the issues with the SRU A Acid Gas Flow Meter and SRU A Tailgas Analyzer.		4/26/2012	SRU A - 4/30/12 SRU B - 11/15/12	10/16/2012		Acid gas lines were cleaned during the 2012 SRU A outage. The A train analyzer was replaced during the 2012 SRU A outage. SRU B analyzer was replaced during the fall shutdown.
4		Investigate providing a curve for vent valve position versus air flow to provide guidance for filter change-out.		4/26/2012	Extended until 9/28/2012	9/23/2012		The vent valve is for surge protection and does not indicate plugging filters. The blowers have filter differential indication. flow. The position of the valve does not indicate anything about the health of the filter. There are existing indicators on the 42C1 A/B/C blowers to show when the filters are plugged. The vent valve is for surge protection and does not indicate plugging filters. The blowers have filter differential indication.
5		Investigate amine monitoring frequency and testing based on changing plant conditions.		4/26/2012	Extended until 8/31/2012	8/12/2012		Amine monitoring has been reviewed and updates to the operating envelope and Lab targets have been made to get better determination on targets. The current sampling has been reviewed with technologist and determine that current sampling time frame is aligned with industry standards. Projects have been put together for the non critical sample found during the review.
6		Consider installing a vortex breaker on Tk 51 an TK 52.		4/26/2012	Tk 51 - 7/1/12 Tk 52 - Next out of service date	7/2/2012		Vortex breaker was installed on suction nozzle.
7		Investigate routing Sulfur Pit Vapors from the Incinerator to the front of the SRUs.		4/26/2012	12/31/2015	12/18/2015		A project investigated the potential scope of rerouting the Complex 2 Sulfur Recovery Unit pit vapors to the front of the trains for reprocessing. This would allow the sulfur compounds in the pit vapors to be converted to elemental sulfur product instead of being released as sulfur dioxide emissions from the incinerator. The estimated reduction from the project would be approximately 5-15 tons of sulfur dioxide per year. Based on input from MRD's air permitting consultant, regulatory agencies consider \$10,000-\$12,000 per ton to be a cost-effectiveness threshold for SO2 BACT. The project did not warrant enough justification on a cost/ton basis at \$156,000/ton. The refining management staff decided to cancel the project based on the cost/ton basis along with that the PMO and NSR Consent Decree do not require this project to be completed. The project information will be kept and could be used in the future for reductions if they are necessary. The DSP is attached to this item for reference.
9		Evaluate the HAZOP Scenario and Alarm rationalization basis for the GOHT Stripper Seam Generator high level alarm.	x	4/26/2012	12/28/2012- Reopened and Extended until 2/1/2014	10/31/2012- 1/21/2014		A PVHH alarm at 95% was added on 1/21/14, per MOC M2014254-001.
8		Consider investigation of the BFW control valve on the Steam Generator	x	4/26/2012	12/28/2012 Extended to 6/30/2013	10/31/2012 6/30/2013		All steam generators have high level alarms that would provide operator notification during an upset that the controls are not keeping up. In that case, the operator should manually take control and close the valve if necessary.
10		Investigate the issues with the Triconics and Honeywell logic and graphics start-up interface	x	4/26/2012	12/28/2012 Reopened and Extended to 6/30/2013	10/31/2012 6/30/2013		The SO2 and 12hr SO2 tags have Urgent priority alarms at 250ppm that will notify the operator of high SO2. The instantaneous SO2 tag has an earlier Low priority alarm at 150. These tags are on several graphics including Incinerator L2&L3, CEMS L3, SRU L2 and the L3's of every train.

Incident No. or ID	Incident Description	Corrective Action Recommendations	Incident Date	Corrective Action Actual Start Date	Completion Date Target	Actual Completion Date	SO2 Emissions	Status / Comments
141682	Hydrocarbon Flaring: Debutanizer Pressure NTE and Flaring		4/9/2015		5/24/2015	5/22/2015	SO2 = 1,326 lbs.	
	1	Install new pressure transmitters on Gasoline Stripper and Debutanizer columns to adequately measure DP at DCS.		4/16/2015		5/22/2015		Pressure transmitters have been installed.
	2	Change control configuration to follow proven industry practices on overhead pressure control.		4/16/2015		5/22/2015		Control configuration has been changed.
	3	Investigate vent capacity, and if inadequate, design a new system to handle debutanizer offgas at current unit rate capacities. Create a project request.		5/22/2015	11/30/2015	11/30/2015		This work scope/investigation has been added to EJN 14-009 FCCU Optimization Project. This action item will be closed.
	4	Perform a test run to increase pressure differential between Gasoline Stripper and Debutanizer (within tower flooding limitations) to allow for level control during upsets		5/22/2015	7/31/2015	7/31/2015		After discussions at Area Team, it was determined that increasing pressure of stripper would make the separation more difficult, potentially sending more unstripped fluid to the debutanizer. In addition, a step test was conducted following all the controls and instrumentation upgrades which concluded that operating the debutanizer unflooded within the proper range of tray 5 temperature and reflux proved to increase C4 recovery. C4 recovery has been maximized up to 0.2% with no flooding at 41k of charge and the debutanizer has ~2 months of run time with no issues seen. Similar conditions with weather and rate changes have been experienced during this time that typically lead to debutanizer overpressure events which then lead to Gas Con recycles. At this time, the pressure differential will not be increased between the gasoline stripper and debutanizer.
	5	Create a project request to install a pump / flow controller on Gasoline stripper bottoms.		5/22/2015	11/30/2015	11/30/2015		Recommendation cancelled. The installation of a debutanizer charge pump has not traditionally been a standard application between gasoline strippers and debutanizers. There are many instances in which pumps are installed as well as left out of design. The main reason for installing is relating to overcoming head between the stripper and debutanizer, allowing the towers to run closer in pressure. This has not been an issue for Detroit as the gasoline stripper operates at 196 psig while the debutanizer operates at 163 psig. No incentive has been identified for running these towers closer in pressure. The reason this recommendation was written was in response to the debutanizer overpressure events resulting in light end build up from various sources across the three incidents. A debutanizer charge pump does not provide value in this situation and may further exacerbate the problem. During upset conditions, a debutanizer charge pump would force more unstripped liquids into the debutanizer, further causing the pressure to build. In the current scenario during upset conditions, the rising pressure in the debutanizer backs out the gasoline stripper, keeping the unstripped liquids in the gasoline stripper. In addition, through the troubleshooting process across the three incidents, multiple fixes were made and implemented that addressed the problem.

Incident No. or ID	Incident Description	Corrective Action Recommendations	Incident Date	Corrective Action Actual Start Date	Completion Date Target	Actual Completion Date	SO2 Emissions	Status / Comments
142220	Down		5/9/2015		6/23/2015	6/19/2015	SO2 = 3,445.63 lbs.	
	1	Conduct radio communication refresher training to area operations with emphasis on repeat back.			6/29/2015	6/29/2015		Completed per G. Banfield.
	2	Change control configuration to follow proven industry practices on overhead pressure control. (Decouple tower and overhead receiver pressure controls)			6/29/2015	6/29/2015		Action completed; control scheme implemented per MOC.
	3	Replace 12PC0261A due to leaking. If needed, replace with alternate metallurgy / design for the service.			6/29/2015	6/29/2015		Valve replaced.
	4	Update TS Control Guideline and Troubleshooting Guide for Debutanizer to avoid operation in the flood regime.			6/29/2015	6/29/2015		Guideline completed and communicated to Operations.
	5	Repair debutanizer reflux flow meter.			7/1/2015	7/1/2015		Reflux flow meter was repaired and returned to service.
	6	Repair / replace control valve. If needed, replace with alternate metallurgy / design for slurry service.			8/31/2015	8/31/2015		ER attached with replacement valves. Replacement in kinds valves were set up in stock due to piping mods being needed on 11FV2068. Fisher valves are the chosen valve of choice for service. They are recommended for Slurry services and high velocity.
	7	Review current SIS testing interval and determine if testing frequency should be increased.			8/31/2015	8/31/2015		These valves are not SIS valves. Frequency will be tested using Reliability tools. We will set up a variance to calculate when the valve flow output starts trending away from valve position.
	8	Evaluate current available spare parts vs. equipment in slurry service. If needed, add equipment to stock.			8/31/2015	8/31/2015		Spares have been updated in stock as replacements in kind.
	9	Issue memo documenting all troubleshooting, modifications, and considerations during April/May 2015 gasoline stripper/debutanizer troubleshooting.			8/1/2015	8/1/2015		Memo issued for review on 8/19/15.
144064 and 144085	Hydrocarbon Flaring: Power Blip and DHT, GOHT and Alky Shutdown due to Power Loss		8/18/2015		10/2/2015	10/2/2015	SO2 = 1,720 lbs.	
	1	For all medium voltage substations, in accordance with manufacturer recommendation, use differential alarm setpoints to activate an external alarm on CT failure. Send alarm to the substation annunciators and DCS board operators.			3/31/2016			
	2	Work with corporate specialist to develop standard factory acceptance test (FAT) for substation checkout.			1/31/2017			
	3	Verify and document correct polarity of CT's in all spare compartments in all MRD substations.			1/15/2019			
	4	Engineer and install wiring to send NVS and NC2 substation alarms to the DCS operator. Currently the critical substation alarms to the DCS board are not in service.			4/1/2016			
	5	Develop and implement a training and awareness program for power distribution systems for refinery electrical staff.			6/30/2016			
	6	Review "Skillbuilder" curriculum and testing to ensure high voltage equipment is adequately addressed.			6/30/2016			
	7	Review trip setpoints for all 587Z relays in refinery substations and verify they are set to the manufacturer's recommendation.			1/15/2016			
	8	Update electrical MOC checklist to include a question regarding tying into spare electrical breakers on medium voltage systems. If answered affirmatively, require a detailed plan to be developed to ensure (1) no adverse effect on refinery equipment and (2) sign-off by Ops and Maintenance managers.			1/15/2016	1/15/2016		DCCR was completed 1/15/16.

Incident No. or ID	Incident Description	Corrective Action Recommendations	Incident Date	Corrective Action Actual Start Date	Completion Date Target	Actual Completion Date	SO2 Emissions	Status / Comments
145608 and 145612	Hydrocarbon Flaring: NHT Reboiler Trip #2		10/25/2015		12/9/2015	12/9/2015	SO2 = 1,096 lbs.	
	1	TK 101 pump discharge pressure may be holding back stripper bottoms from getting out (No stripper bottoms pump). An Engineering Request exists to improve the TK101 pump spillback. Submit an engineering request to install Pressure transmitters for TK101 pump discharge and NHT Charge pump suction pressures.		10/25/2015	12/17/2015	12/7/2015		This item has been completed per the incident investigation report (INC-145608) and was entered for documentation.
	2	NHT Splitter is flared due to abnormal startup, no other lineup. Develop a project to route West Plant Flare system to a Flare Gas Recovery compressor to recover the release of H2S containing streams during abnormal situations.		10/25/2015	12/17/2015	12/7/2015		This item has been completed per the incident investigation report (INC-145608) and was entered for documentation.
	3	NHT Splitter is flared due to abnormal startup. No other lineup. Add wording in the NHT Startup documentation to place the unit in long circulation prior to NHT reactor charge introduction IF DHT Naphtha is being sent to the stripper.		10/25/2015	7/1/2016			
	4	Line up is missed, cycling LSR up in Unit. Errors were not immediately detectable with available equipment/instrumentation. Review importance of "Walk the Line" with Operator and Shift.		10/25/2015	12/18/2015	12/7/2015		This item has been completed per the incident investigation report (INC-145608) and was entered for documentation.
145951	Hydrocarbon Flaring: FCC Start-up Flaring		10/30/2015		12/14/2015	12/11/2015	SO2 = 521 lbs.	
	1	Change FCC Start-up procedure to start 12C9 wet gas compressor only after Reactor temperatures are achieved. Include in the procedure the importance of quickly establishing feed after start of 12C9 to reduce flaring at the LPR.		12/11/2015	3/31/2016			
	2	Determine correct reactor temperatures for start-up of FCC before feed is introduced.		12/11/2015	12/18/2015	12/18/2015		Correct reactor temperatures given to Operations prior to the Cat 2 Incident Investigation being completed and given to the DLT. Feed can be introduced after 960 degrees F at the riser outlets. New procedure will introduce feed between 990 - 1000 degrees F and will call out the specific temperature indication tags to reference.
	3	Investigate and document the need for a startup vaporizer.		12/11/2015	12/30/2016			